



A Clinical Study of Fungal Keratitis

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Abstract

This hospital based, cross sectional, prospective study was conducted in the department of ophthalmology of a tertiary care hospital to study the prevalence, treatment, and complications of mycotic keratitis and also to find out the contributing and predisposing factors for its occurrence. In this study we have also made an attempt to identify the causative fungi; although not always a preventable disease, early diagnosis and institution of appropriate treatment by community health workers or ophthalmologists can help to minimise the extreme consequences of mycotic keratitis. Timely clinical suspicion, judicious use of laboratory diagnostic procedures and prompt treatment can significantly reduce the blinding complications of fungal corneal involvement.

Introduction

Corneal diseases is an important cause of visual loss and is second only to cataract, it is a major cause of mono-ocular blindness in developing countries.¹ Fungal corneal infection is responsible for 30 to 40% of all cases of infectious keratitis in India,² there is a significant lack of awareness about the diagnosis and the management of mycotic keratitis. Apart from the typical clinical features and risk factors, laboratory investigations play a crucial role in the diagnosis of fungal keratitis.³ Inflammation and ulceration of the cornea by fungus is a major ophthalmic problem and was first described by Leber in 1879.⁴ The cornea may be invaded by various fungi, filamentous fungi are a frequent cause of corneal ulcers in humans.⁵ Injury by vegetative material, local antibiotic or steroid use, abnormality of lids, tear film or corneal epithelium, contact lens use are some of the predisposing factors for mycotic keratitis.

To establish the diagnosis of mycotic keratitis the use of smears and cultures is very important, 10% KOH, Gram stain, Gomori silver methanamine stain are used and Sabouraud's dextrose agar is used for fungal culture, in non responding cases corneal biopsy may be needed. Medical line of treatment includes antifungal agents, cycloplegics and local broad spectrum antibiotics to prevent secondary bacterial infections.⁶ About 30% cases lead to corneal perforation where therapeutic keratoplasty or conjunctival flap may be needed.

Material and Methods

100 cases having clinical features of fungal keratitis were included, detailed history especially about injury, contact lens use or any drug instillation or recent eye surgery was taken, ocular and adnexal examination was meticulously performed with special attention towards lid and tear film abnormalities. Corneal scraping with

sterile no.15 blade was taken under topical anaesthesia from the advancing edge and the base of the ulcer and was inoculated in Sabouraud's agar and on blood agar, slides prepared and stained with Gram and calcoflour white stain. The culture was incubated at 27 to 30 degrees celsius upto 4 weeks and discarded if no growth is seen.

All the cases were managed with 5% natamycin topical suspension 1 hourly, adjuvant treatment with cycloplegic drops and topical broad spectrum antibiotics was also given. Therapeutic keratoplasty was done in 2 cases which showed no response to topical treatment and where there was risk of corneal perforation.

Statistical analysis was done by using chi-square test.

Observations and Discussion

Out of the 100 cases, 77 were male and 23 were female, maximum cases belonged to the age group of 61 to 70 years (40%)

Table No. 1 - Age wise distribution of patients

Age group	Male	Female	Total
≤ 20years	3	1	4
21 to 30 years	3	0	3
31 to 40 years	2	1	3
41 to 50 years	16	4	20
51 to 60 years	24	6	30
61 to 70 years	29	11	40

Almost all the patients complained of redness, watering, irritation, pain, photophobia and diminution of vision, there was symptomatic improvement from the third day of treatment in most of the patients.

Table No.2 – Presenting complaints

Presenting complaints	No. Of patients	%
Pain	100	100
Redness	100	100
Watering	100	100
Photophobia	98	98
Foreign body sensation	90	90
Dryness	5	5
Itching	6	6
Diminution of vision	99	99
Irritation	93	93

Out of the 100 patients, 90% patients presented within 5 days from the onset of symptoms, 7 patients presented within 5 to 10 days of the onset of complaints and 3% presented after 10 days.

Table No.3 – Distribution of patients according to duration of symptoms at presentation.

Duration of symptoms	No. Of patients
≤5 days	90
5 to 10 days	7
≥10 days	3

In 60% of patients the visual acuity was reduced to 6/60 on the Snellen's chart, in 30% of cases the V/A was between 1/60 to 6/60 and in 10% of patients the visual acuity was severely compromised to less than 1/60.

All the patients were subjected to slit lamp examination and fluorescein staining, the staining was positive in all the 100 patients, nearly half of the patients showed immune ring in the cornea, satellite lesions and various levels of hypopyon.

70 patients had a para-central ulceration, while 30 had a central corneal ulcer.

On microbiological examination, 25 patients demonstrated pure mycotic growth; 70 patients showed bacterial growth and 5 patients showed mixed bacterial and fungal growth.

Fungal isolates in positive cases showed fusarium species in 25% of cases, aspergillus was seen in 20% of patients and in 5% cases candida species was isolated.

Summary and Conclusions

The present study was carried out in the Department of ophthalmology at a tertiary care hospital on the patients attending the OPD as well as IPD patients, total 100 patients were studied and the prevalence of fungal keratitis was found to be about 40%. Males were affected more commonly than the females and most of the patients were from the age group of 61 to 70 years. Agricultural workers were affected more commonly than those involved in any other profession, injury by vegetative material was the most common predisposing factor.

Fusarium species was found to be the most common fungal pathogen.

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